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(54) **WIRELESS CHARGING SYSTEM FOR USING FREQUENCY CONTROL**

(57) Disclosed is a transmitter used for a wireless charging system. The transmitter includes a plurality of phase locked loops (PLLs) that outputs single-phase power signals, a plurality of antennas that transmits power signals transmitted from the plurality of PLLs to a receiver, and a controller that determines a specific fre-

quency for the receiver based on a signal strength indication (RSSI) received from the receiver and allows output frequencies of the plurality of PLLs to be different from each other in a specific frequency band preset based on the specific frequency.

EP 3 393 006 A3



EUROPEAN SEARCH REPORT

 Application Number
 EP 18 16 7869

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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A	WO 2014/075103 A1 (CALIFORNIA INST OF TECHN [US]) 15 May 2014 (2014-05-15) * the whole document *	1-11	
A	WO 2007/084716 A2 (THIRD OPTION LLC [US]; COOK NIGEL P [US]; LEVINE RICHARD C [US]) 26 July 2007 (2007-07-26) * the whole document *	1-11	
A	WO 2015/077730 A1 (CALIFORNIA INST OF TECHN [US]) 28 May 2015 (2015-05-28) * the whole document *	1-11	
			TECHNICAL FIELDS SEARCHED (IPC)
			H02J
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
Munich		16 August 2018	Tille, Daniel
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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Application Number

EP 18 16 7869

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-11

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).

**LACK OF UNITY OF INVENTION
SHEET B**

Application Number

EP 18 16 7869

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-11

Transmitter optimising power transmission to a single receiver

2. claims: 12-14

Transmitter optimising power transmission to a plurality of users

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 18 16 7869

5

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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